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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,488	11/03/2003	Moon-Cheol Kim	1349.1294	3243

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
TRAN, TAM D	
ART UNIT	**PAPER NUMBER**
2676	

DATE MAILED: 06/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/698,488	KIM, MOON-CHEOL	
	Examiner	Art Unit	
	Tam D. Tran	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-18* is/are allowed.

6)☒ Claim(s) *19-22,24-31 and 33* is/are rejected.

7)☒ Claim(s) *23,32 and 34-41* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *06/10/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 19-22, 24-27, 28-31, 33, are rejected under 35 U. S.C. 103(a) as being unpatentable over Westerman (USPN 6510242 B1) in view of Braun et al. (US 2004/0109180 A1), hereinafter simply Westerman and Braun.

2. In regard to claim 19, 28, Westerman teaches color signal processing device, comprising: a conversion unit converting an input image signal into an RGB color signal; see col.3 lines 5-15; a change rate calculation unit calculating change rates of the RGB color signal when the RGB color signal changes with respect to change rates of a color difference signal on boundaries of a color space of the RGB color signal (computing two chrominance difference coefficients); see col.5 lines 25-35; Westerman does not teaches a color gamut decision unit determining a displayable scope of color chroma based on the change rates of the RGB color signal with respect to the change rates of the color difference signal and when the detected RGB color signal exists on the boundaries of the color space of the RGB color signal. However, Braun teaches determining a displayable scope of color chroma based on the change rates of the RGB color signal with respect to the change rates of the color difference signal and when the detected RGB

color signal exists on the boundaries of the color space of the RGB color signal (colorimetric cost term is defined by function that is responsive to input color differences). See page 5 paragraph 49. It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the method of finding color of Braun into the method of converting YCbCr to RGB of Westerman because a combination of the method of Westerman and the method of Braun would provide a reduce color gamut boundary which was generate by minimizing a cost function that had volume, noise, and colorimetric cost term. See page 6 paragraph 55.

3. In regard to claims 20, 29, Westerman teaches color signal processing device, wherein the conversion unit comprises: a luminance color difference signal conversion unit converting the input image signal into a luminance color difference signal; and an RGB color signal conversion unit converting the luminance color difference signal into the RGB color signal. See col.3 lines 5-15.

4. In regard to claims 21, 30, Braun teaches color signal processing device, further comprising: a minimum change rate selection unit selecting a minimum change rate from the change rates of the RGB color signal. See page 6 paragraph 55.

5. In regard to claim 24, Braun teaches color signal processing device, wherein the color gamut decision unit determines the scope of the color chroma based on the minimum change rate selected by the minimum change rate selection unit. See page 6 paragraph 55.

6. In regard to claims 25, 33, Westerman teaches color signal processing device, wherein the luminance color difference signal is one of a YCbCr signal, a YIQ signal, and a YUV signal. See col.3 lines 5-15.

7. In regard to claim 26, Westerman teaches color signal processing device, wherein the change rate of the RGB color signal refers to a change rate of each of a red color (R) signal, a green color (G) signal, and a blue color (B) signal. See col.5 lines 25-35.

8. In regard to claim 27, Braun teaches color signal processing device, further comprising: a display unit connected to the RGB color signal conversion unit and the color gamut decision unit. See Fig.3.

Claims 22, 31, are rejected under 35 U. S.C. 103(a) as being unpatentable over Westerman (USPN 6510242 B1) in view of Braun et al. (US 2004/0109180 A1) and further in view of Lawrence Seligman (USPN 3564226).

9. In regard to claim 22, 31, Westerman and Braun teach color signal processing device of claim 19 and 28. Braun teach the color gamut decision unit determines the displayable scope of the color chroma of the input image signal to display a color signal identical to the input image signal with a memory to store coordinate values when calculating a chroma scope. Braun does not teach processing data without memory. However, Lawrence teaches processing data without memory, see col.1 lines 52-57. It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the method of finding color of Braun into digital data processing system of Lawrence because the combination of Braun's method and Lawrence's system would provide a system of relatively high speed operation.

Allowable Subject Matter

10. Claims 23, 32, 34-41, objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 1-18, are allowed.

12. The following is a statement of reasons for the indication of allowable subject matter: The closest prior art shows the method of converting YCbCr into RGB but does not disclose a color signal processing device, comprising: a change rate detection unit detecting a change rate of a color difference signal when the color difference signal changes with hue and luminance remaining constant in a color space of the luminance color difference signal; and a color gamut decision unit determining a color chroma scope based on a change rate of the RGB color signal according to the change rate of the color difference signal when the detected RGB color signal exists on a color space boundary of the RGB color signal and displaying the color chroma scope on the display unit. The method simply process color signals without a memory storing color gamut coordinates values, in addition to preventing that converted color signals go beyond a displayable color gamut.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tam D. Tran** whose telephone number is **571-272-7793**. The examiner can normally be reached on MON-FRI from 8:30 – 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, **Matthew Bella** can be reached on **571-272-7778**. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tam Tran
T T
Examiner

Art unit 2676

Matthew C. Bella

MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600